

## Physics for Radiology

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## Faculty of Science

[Science](#) » [Physics for Radiology](#) » [Quizzes](#) » [Quiz 1: MRI](#) » Review of preview[Update this Quiz](#)[Info](#) [Results](#) [Preview](#) [Edit](#)

## Quiz 1: MRI

[Start again](#)

## Review of preview

<b>Started on</b>	Thursday, 19 September 2013, 11:16 AM
<b>Completed on</b>	Thursday, 19 September 2013, 11:21 AM
<b>Time taken</b>	4 mins 19 secs
<b>Grade</b>	0 out of a maximum of 10 (0%)

1

Marks: 1

A paramagnetic substance - Gadolinium, is used as an MR contrast medium because, it can make change of the signal intensity by

Choose one answer.

- ☐ a. Shortening T1 and T2 in its surroundings ✓
- ☐ b. Increasing T1 and shortening T2 in its surroundings ✗
- ☐ c. Shortening T1 and increasing T2 in its surroundings ✗
- ☐ d. Increasing T1 and T2 in its surroundings ✗

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Incorrect

Marks for this submission: 0/1.

2

Marks: 1

Which of these is a disadvantage of MRI?

Choose one answer.

- ☐ a. Two-dimensional image. ✗
- ☐ b. Unsuitable for pacemaker wearers ✓
- ☐ c. Shows vasculature without contrast ✗
- ☐ d. High dose of ionizing radiation ✗

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Incorrect

Marks for this submission: 0/1.

3

Marks: 1

In inversion recovery sequence, fat can be suppressed by using long T1

Choose one answer.

- ☐ a. False ✓
- ☐ b. True ✗

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Incorrect

Marks for this submission: 0/1.

4

What does PRECESSION mean?

Marks: 1

Choose one answer.

- ☐ a. (A)The spinning of Hydrogen protons around their own axis. ✗
- ☐ b. Change in orientation of Hydrogen molecules when exposed to radiowaves at the Larmor frequency. ✗
- ☐ c. The wobble of Hydrogen protons exposed to a large magnetic field. ✓
- ☐ d. Water molecules gain an extra molecule of Hydrogen when exposed to a magnetic field ✗

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Incorrect

Marks for this submission: 0/1.

5

For most biological tissues, T2 is:

Marks: 1

Choose one answer.

- ☐ a. More than 100 milliseconds ✗
- ☐ b. Less than T1 ✓
- ☐ c. More than T1 ✗
- ☐ d. Less than T2\* ✗

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Incorrect

Marks for this submission: 0/1.

6

Which would not be useful for medical MR imaging?

Marks: 1

Choose one answer.

- ☐ a.  $^{13}\text{C}$  ✗
- ☐ b.  $^{23}\text{Na}$  ✗
- ☐ c.  $^1\text{H}$  ✗
- ☐ d.  $^{16}\text{O}$  ✓

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Incorrect

Marks for this submission: 0/1.

7

The spin echo sequence consists of

Marks: 1

Choose one answer.

- ☐ a. Series of 90 degree pulse separated by TE. ✗
- ☐ b. 180 degree followed by 90 degree pulse. ✗
- ☐ c. 90 degree pulse followed by 1800 pulse. ✓
- ☐ d. Series of 180 degree pulse separated by TE. ✗

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Incorrect

Marks for this submission: 0/1.

8

Inversion recovery sequence using long T1 means

Marks: 1

Choose one answer.

- ☐ a. Getting FLAIR where, water is suppressed. ✓
- ☐ b. Getting STIR where, fat is suppressed. ✗

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Incorrect

Marks for this submission: 0/1.

9



Marks: 1

In clinical MRI, Hydrogen is the most frequently imaged nucleus due to its great abundance in biological tissues.

Choose one  
answer.

- ☐ a. False ✗  
☐ b. True ✓

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Incorrect

Marks for this submission: 0/1.

10



Marks: 1

“FLAIR” stands for Fluid attenuation inversion recovery

Choose one  
answer.

- ☐ a. False ✗  
☐ b. True ✓

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Incorrect

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